

ABSTRACT

A novel nozzle heater design, that facilitates fast thermal response on demand, to achieve rapid reduction in viscosity, allowing fluid to flow through the exit aperture of the nozzle with less pressure, reduced surface tension and elastic behavior at break off. A rapid cool down after a temperature spike alleviates problems associated with prolonged exposure of the fluid at temperature. Prolonged exposure manifests the following problems: volatiles are driven off, premature cross-linking is initiated and fluid in the heated region is subsequently ruined. The fluid path heater is designed to prevent the occurrence of these problems by virtue of the exceptionally fast thermal response rate. This heater design requires no fasteners and is simple to assemble; parts are held in place by inherent geometric relationships and connection to the nozzle hub is tool-less and self-compensating for tolerance variation in the nozzle hub to which it is connected. The heater lowers cost by improving the productivity of the fluid dispensing system on which it is installed.